

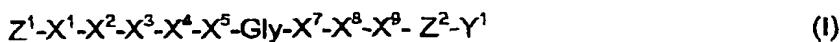
JC09 Rec'd PCT/PTO 22 JUN 2005

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PART 34 AMDT

Claims

1. A peptide of the amino acid sequence of formula (I)



or formula (II)



wherein

$X^1$  is an amino acid selected from the group Ser, His, Thr, Ala, Gln, Phe, Gly and Ile

$X^2$  is an amino acid selected from the group Tyr, Arg and Phe

$X^3$  is an amino acid selected from the group Tyr, Ser, Asn, Glu, Asp and Thr

$X^4$  is an amino acid selected from the group Ser, Ala, Gly, Asp and Phe

$X^5$  is an amino acid selected from the group Asp and Ser,

$X^7$  is an amino acid selected from the group Thr, Val, Met, Ser, Trp, Tyr, Leu and Ala

$X^8$  is an amino acid selected from the group Tyr, Phe and Leu

$X^9$  is an amino acid selected from the group Asp, Ser and Glu

$Z^1$  represent an amino acid residue capable of forming a disulphide bond, preferably a cysteine or a homocysteine residue, or a residue capable of forming a thioether preferably the residue is  $Q-C(=O)$  wherein  $Q$  represents  $-(CH_2)_n$  or  $-(CH_2)_n-C_6H_4$  where  $n$  represents a positive integer 1 to 10 or is absent and

$Z^2$  represent an amino acid residue capable of forming a disulphide bond, preferably a cysteine or a homocysteine residue or is absent

$Y^1$  represents 1-10 amino acids or is absent

or pharmaceutically acceptable salts thereof.

2. A peptide according to claim 1 of the amino acid sequence

Cys-Ser-Tyr-Tyr-Ser-Asp-Gly-Val-Tyr-Asp-Cys, (SEQ ID NO 1),

Cys-His-Tyr-Ser-Ser-Asp-Gly-Thr-Tyr-Asp-Cys, (SEQ ID NO 2),

Cys-Thr-Tyr-Asn-Gly-Asp-Gly-Ser-Phe-Asp-Cys, (SEQ ID NO 3),

Cys-Ala-Tyr-Glu-Ala-Asp-Gly-Trp-Phe-Asp-Cys, (SEQ ID NO 4),

Cys-Ser-Tyr-Ser-Ala-Asp-Gly-Thr-Leu-Asp-Cys, (SEQ ID NO 5),

Cys-Gln-Tyr-Asp-Ser-Ser-Gly-Met-Tyr-Asp-Cys, (SEQ ID NO 6),

Cys-Phe-Phe-Asp-Ser-Ser-Gly-Tyr-Phe-Asp-Cys, (SEQ ID NO 7),

Cys-Thr-Tyr-Ser-Ala-Asp-Gly-Leu-Tyr-Asp-Cys, (SEQ ID NO 8),

Cys-His-Phe-Asp-Gly-Asp-Gly-Ser-Tyr-Asp-Cys, (SEQ ID NO 9),

Cys-Thr-Tyr-Glu-Pro-Ser-Gly-Met-Tyr-Asp-Cys, (SEQ ID NO 10),  
Cys-Gln-Tyr-Thr-Ala-Asp-Gly-Ala-Phe-Asp-Cys, (SEQ ID NO 11),  
Cys-Ile-Tyr-Glu-Ser-Asp-Gly-Met-Phe-Ser-Cys, (SEQ ID NO 12),  
Cys-Gly-Arg-Ser-Asp-Gly-Thr-Trp-Tyr-Glu-Cys, (SEQ ID NO 13) or  
Cys-Ser-Tyr-Tyr-Ala-Asp-Gly-Met-Tyr-Ser-Cys, (SEQ ID NO 14).

### 3. A targetable diagnostic and/ or therapeutically active agent of formula (III)

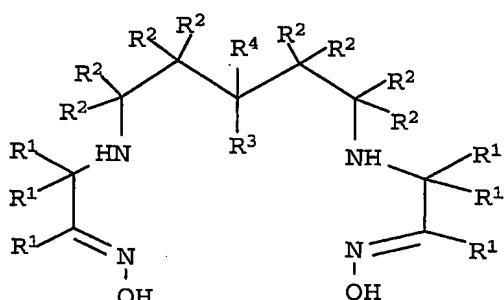
### V-L-Z Formula (III)

wherein the vector V is a peptide according to claim 1-2

L represents a bond, a spacer or a linker and

Z represents an antineoplastic agent, a reporter moiety or a group that optionally can carry an imaging moiety M.

4. An agent as claimed in claim 3 where Z is a chelating agent of Formula IV



(IV)

where:

each  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  is independently an R group:

each R group is independently H or C<sub>1-10</sub> alkyl, C<sub>3-10</sub> alkylaryl, C<sub>2-10</sub> alkoxyalkyl, C<sub>1-10</sub> hydroxyalkyl, C<sub>1-10</sub> alkylamine, C<sub>1-10</sub> fluoroalkyl, or 2 or more R groups, together with the atoms to which they are attached form a carbocyclic, heterocyclic, saturated or unsaturated ring.

5. An agent as claimed in any of the previous claims 3 to 4 wherein Z comprises a reporter moiety, M wherein the reporter moiety M comprises metal radionuclides

paramagnetic metal ions, fluorescent metal ions, heavy metal ions or cluster ions.

6. An agent as claimed in claim 5 wherein the reporter moiety M comprises <sup>80</sup>Y, <sup>99m</sup>Tc, <sup>111</sup>In, <sup>47</sup>Sc, <sup>67</sup>Ga, <sup>51</sup>Cr, <sup>177m</sup>Sn, <sup>67</sup>Cu, <sup>167</sup>Tm, <sup>97</sup>Ru, <sup>188</sup>Re, <sup>177</sup>Lu, <sup>199</sup>Au, <sup>203</sup>Pb, <sup>141</sup>Ce or <sup>18</sup>F.

7. An agent as claimed in claims 3 to 6 where each reporter (Z) can carry a multiplicity of vectors V.

8. An agent as claimed in claim 3 where the antineoplastic agent Z represent cyclophosphamide, chloroambucil, busulphan, methotrexate, cytarabine, fluorouracil, vinblastine, paclitaxel, doxorubicin, daunorubicin, etoposide, teniposide, cisplatin, amsacrine or docetaxel.

9. A pharmaceutical composition comprising an effective amount of a compound of general Formula (III) or a salt thereof, together with one or more pharmaceutically acceptable adjuvants, excipients or diluents for use in enhancing image contrast in *in vivo* imaging or for treatment of a disease.

10. A method of generating enhanced images of a human or animal body previously administered with a contrast agent composition comprising a compound as claimed in claims 3 to 7, which method comprises generating an image of at least part of said body.